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(54) Title: FROZEN SLUSH SNACK COMPOSITIONS

(57) Abstract

Frozen slush snack compositions containing: (a) 0.02 to 3.0 wt.% of a gum; (b) 0.15 to 0.9 wt.% of pectin; (c) 13 to 37 wt.% of a sugar; and (d) 60 to 87 wt.% of water, are liquid at room temperature and exist as a slush at -10 °F to +10 °F. Such compositions are storage stable and stable to repeated freeze-thaw cycles.

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TITLE OF THE INVENTION

FROZEN SLUSH SNACK COMPOSITIONS

BACKGROUND OF THE INVENTION

Field of the Invention:

The present invention relates to frozen slush snack compositions. In particular, the present invention relates to alcohol-free frozen slush snack compositions, which are liquid at room temperature and exist as a slush at temperatures of -10°F to +10°F.

Discussion of the Background:

Flavored slush snacks are popular, especially with children in the six to twelve year old age group. Such snacks are usually only consumed at or near the place of production, and are typically prepared by a scraped-surface freezer. These snacks are prepared on a continuous basis with constant agitation typically during freezing. Such flavored slush snacks are composed of a sweetened and flavored aqueous liquid containing fine ice crystals and are served at or near the freezing point of water. Such flavor slush snacks are not usually prepared in the home because of the specialized equipment required. As a further disadvantage, when such snacks are melted, re-freezing of the product provides an undesirable product which is essentially a block of ice.

An overview of the properties desired for and the problems encountered with such frozen slush snacks is provided in U.S. Patent no. 4,808,428, which is incorporated herein by reference. Specifically, a number of problems are encountered in preparing a flavored liquid snack product which is intended to be marketed in containers stored at room temperature for subsequent use by the household by placing the container in a home freezer. The first problem is one of sweetness regulation. In most compositions of this nature, the presence of a high level of sugar is desired to modify the extent and type of ice crystal formation sufficiently to permit the realization of a slush rather than a solid frozen product. Slush is defined as a mixture of liquid and ice crystals. Thus, the selection of a suitable sugar or combination of sugars which will supply the desired ice crystal modification effect and freezing point depression and at the same time not be unbearably sweet to the taste is important.

A second and related problem is that of crystallization of dextrose or other sugars used in preparing these products. Because of the concentration effect which takes place on freezing of liquids of this nature, sugars such as dextrose reach a point where they are in supersaturated solution, whereupon crystallization of the sugar takes place. The crystals do not readily re-dissolve on thawing of the product.

The presence of crystallized dextrose and other sugars is decidedly a disadvantage in slush snacks in that the white crystals provide an unattractive, undesirable, appearance to the frozen product. This problem of crystallization is accentuated where repeated freeze-thaw cycles are encountered.

Another important consideration is the shelf stability of the liquid product at room temperature. Liquids having a high sugar content are ideal places for microorganisms such as yeast to grow. It is thus important that microbiological stability is insured by using the correct balance of sugar concentration, acidity and added preservatives such as the sorbates and benzoates.

Still another important consideration is the nature of the final product. It is desirable to provide a product which has a substantial proportion of platelet ice crystals, termed "shale" ice, intermixed with liquid and fine ice crystals to form a homogeneous mass. This homogeneous mass must form during quiescent freezing of the product in the container. At the same time, the frozen product must be easily disrupted by stirring or by pressure exerted by deforming a flexible container.

Another important consideration is that the consistency of the slush product remain substantially unchanged over a prolonged period of storage at freezer temperatures. Home

freezer temperatures vary from +10°F to -10°C and the product must be formulated so that the product is readily stirred to a slush with a spoon after two to three months storage at -10°F.

Still another important consideration is the character of the slush snack after removal from the freezer and during consumption. It is highly desirable that immediately upon removal from the freezer, the product can be simply stirred with a spoon to break it up into a slush which is readily consumable with a spoon. During melting of the slush, which should take place over a period of about 15-20 minutes at room temperature, desirable slush characteristics should be maintained. The completely melted product should also be suitable for drinking, should be free from gummy or slimy characteristics and should have a consistency approaching that of water.

U.S. Patent No. 3,647,472 describes a beverage mix which can be stored at room temperature for an indefinite period of time but which is intended to be placed in a home freezer to be allowed to freeze to a slush consistency before it is consumed. The beverage mix is intended to be combined with an alcoholic distillate or other liquid ingredient before consumption. The composition contains sugar in quantities up to 30-40% by weight, which serves as both a sweetener and as a cryoscopic modifier. Glycerol is also used as a cryoscopic

modifier, for the purpose of controlling the size of the ice crystals and the freezing point of the mix.

One disadvantage of the product disclosed in U.S. Patent No. 3,647,472 is the requirement that it be mixed with another liquid, such as an alcoholic distillate or other beverage, before consumption. In addition, the patented product contains glycerol at a level of 0.5 to 8% to control the size of the ice crystals formed during freezing. It has been found that glycerol contributes an undesirable bitter flavor to the product.

U.S. Patent No. 3,826,829 describes a liquid suitable for producing a slush beverage which utilizes a composition containing water, sugars, polyols, flavor, and coloring agents together with pectin in combination with other gums as a stabilizing agent. The product of this invention, which can include both carbonated and non-carbonated aqueous solutions as a base, has for an object the provision of a product having a sherbet-like consistency. This fine grained ice crystal structure is a disadvantage where products containing "shale" ice crystals are desired. In addition, high levels of pectin are known to impart an unpleasant, somewhat slimy characteristic to the beverage when the product has melted and also contributes to haziness in the product, which can be unacceptable for purposes where clarity is desired. Moreover,

the products described in U.S. Patent No. 3,826,829 contain a polyol, such as propylene glycol, sorbitol, and glycerol, as an essential ingredient. Such polyols contribute an undesirable bitter flavor to the product, exhibit a laxative effect on some people, and are undesirable from a labeling standpoint.

U.S. Patent No. 3,897,571 describes a process for producing a refrigeration-stable slushed comestible concentrate that is spoonable and stirrable at 0°F, and which remains in this desirable condition over an extended period of storage at home freezer temperatures, without hardening into an unspoonable block. The process includes the steps of slowly growing ice crystals in a composition containing gum and sugar and continuing the crystallization process while agitating to produce an overrun and to incorporate a gaseous phase to establish a stable tertiary phase mixture of concentrates syrup matrix interspersed with coarse ice crystals in a gaseous foam. A product of this type has the disadvantage of requiring distribution and storage only under home freezer temperatures. In addition, it does not retain its desirable characteristics through a thaw-refreeze cycle.

U.S. Patent No. 3,922,361 describes a process for preparing a soft frozen, all natural fruit juice in which a fruit juice concentrate, such as orange, is thawed and

combined with natural sweeteners and subjected to freezing in a slush freezing apparatus. A drawback of the product produced in U.S. Patent No. 3,922,361 is that preparation of the final product must be carried out in a commercial soft frozen freezer machine, not a conventional home freezer.

U.S. Patent No. 4,724,153 discloses a soft-frozen water-ice formulation which is extrudable at 0° to 10°F and which contains a critical amount of chemical emulsifiers. One disadvantage of the product disclosed in U.S. Patent No. 4,724,153 is that the product requires processing with freezing equipment not suitable for home use. The product also requires the use of polysorbate 80, which must be listed specifically on the product label. It is undesirable on a label because it does not sound "natural and healthy." Polysorbates are also not permitted for food use in some countries, and thus their presence would limit export possibilities if so desired.

U.S. Patent No. 4,790,999 discloses a ready-to-consume, freezable alcoholic beverage composed of water, sugars, alcohol, flavorants, and carboxymethyl cellulose. The presence of alcohol renders these compositions inappropriate for consumption by children.

U.S. Patent No. 4,808,428 discloses a flavored slush snack composed of 22-33% dextrose, 1-5% fructose, an edible

acid preservative, and water. One disadvantage of the product disclosed in U.S. Patent No. 4,808,428 is that it requires either high levels of dextrose, which are excessively sweet, or the addition of sorbitol, which can have an undesirable laxative effect.

U.S. Patent No. 4,971,824 discloses a frozen natural food product formed solely from all natural fruit, vegetable juices, purees or combinations thereof. One disadvantage of the product disclosed in U.S. Patent No. 4,971,824 is that the product requires processing with freezing equipment not suitable for home use. It also contains only fruit juices and therefore does not allow for the creation of nonfruit flavored products, like chocolate or caramel.

U.S. Patent No. 4,986,994 discloses a process for preparing a low calorie slush beverage in which an artificial sweetener is completely dissolved in water, followed by the addition of microcrystalline cellulose, followed by the addition of xanthan gum which has been wetted with propylene glycol. However, this process requires a freezing chamber not suitable for home use.

U.S. Patent No. 5,246,725 discloses a spoonable frozen food product which contains a fairly high concentration (3 to 10% by weight) of a bulking agent, such as maltodextrin, corn syrup solids, polydextrose, xanthan gums, locust bean gum or

CMC. One disadvantage of the product disclosed in U.S. Patent No. 5,246,725 is that the products contain only nonnutritive sweeteners, which have objectionable flavors or aftertastes for many people, along with various reported undesirable side effects.

Thus, none of the products described in the prior art are completely satisfactory. Accordingly, there remains a need for frozen slush snack compositions.

SUMMARY OF THE INVENTION

Accordingly, it is one object of the present invention to provide novel frozen slush snack compositions.

It is another object of the present invention to provide novel frozen slush snack compositions which are liquids at room temperature and exist as a frozen slush at a temperature of -10°F to +10°F.

It is another object of the present invention to provide novel frozen slush snack compositions which are storage stable in the liquid state for long periods of time.

It is another object of the present invention to provide novel frozen slush snack compositions which are storage stable in the liquid state at room temperature and temperatures above room temperature for long periods of time.

It is another object of the present invention to provide novel frozen slush snack compositions which are alcohol free.

It is another object of the present invention to provide novel frozen slush snack compositions which are stable to repeated freeze-thaw cycles.

It is another object of the present invention to provide novel frozen slush snack compositions which are producible in a conventional home freezer without any additional equipment.

It is another object of the present invention to provide novel frozen slush snack compositions which are ready to eat without the addition of further ingredients or additional processing before consumption.

These and other objects which will become apparent during the following detailed description have been achieved by the inventors' discovery that compositions, comprising:

(a) 0.02 to 3.0 wt.% of a gum;

(b) 0.15 to 0.9 wt.% of pectin;

(c) 13 to 37 wt.% of sugar; and

(d) 60 to 87 wt.% of water,

are liquid at room temperature and exist as a slush at a temperature of -10°F to +10°F are storage stable at room temperature and temperatures above room temperature and are stable to repeated freeze-thaw cycles.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Thus, the present invention provides frozen slush snack compositions which comprise

(a) 0.02 to 3.0 wt.% of a gum;

(b) 0.15 to 0.9 wt.% of pectin;

(c) 13 to 37 wt.% of sugar; and

(d) 60 to 87 wt.% of water.

Pectin is a polysaccharide substance of molecular weight 20,000-400,000 derived from the cell walls of plants, which is commercially available from, e.g., Sigma Chemical Company, St. Louis, MO; Danisco Ingredients USA, Inc., New Century, Kansas; and Pectagel Inc., Great Neck, New York. Common sources of pectin include apple and citrus fruits, and all may be suitably used.

The amount of pectin present in the compositions is suitably 0.15 to 0.9 wt.%, preferably 0.2 to 0.35 wt.%, based on the total weight of the composition. If the amount of pectin is greater than 0.9 wt.%, then the slush is gelatinous, gummy, and becomes yellow in color. In addition, sweetness and acidity are masked, and the mouthfeel is slimy. If the amount of pectin is less than 0.15 wt.%, then large ice crystals form in the liquid, and the product melts too fast.

Any of a number of different gums may be employed, and the amount of gum used will depend on the identity of the gum. Suitable gums and the appropriate amounts include:

A. Guar gum, 0.02-0.07 wt.%, preferably about 0.04 wt%.

At levels below 0.02 wt.% the slush texture is brittle with large ice crystals. It also melts very quickly. At levels above 0.07 wt.% the texture is gummy and stringy, and the flavor becomes cardboard like.

B. Gum tragacanth, 0.07-0.20 wt.%, preferably about 0.12 wt.%.

At levels below 0.07 wt.% the slush texture is brittle with large ice crystals. It also melts very quickly. At levels above 0.20 wt.% the texture is gummy, and the flavor becomes cardboard like.

C. Gum arabic, 0.50-3.00 wt.%, preferably about 1.20 wt.%.

At levels below 0.50 wt.% the slush texture is brittle with large ice crystals. It also melts very quickly. At levels above 3.00 wt.% the texture is gummy, the color becomes yellow, and the flavor becomes cardboard like.

D. Xanthan gum, 0.04-0.15 wt.%, preferably about 0.06 wt.%.

At levels below 0.04 wt.% the slush texture is brittle with large ice crystals. It also melts very quickly. At levels above 0.15 wt.% the texture is gummy and stringy, and the flavor becomes cardboard like with a slimy mouthfeel.

E. Carrageenan, 0.25-0.70 wt.%, preferably about 0.30 wt.%.

At levels below 0.25 wt.% the slush texture is brittle with large ice crystals. It also melts very quickly. At levels above 0.70 wt.% the texture is gummy and slimy, and the flavor becomes cardboard like.

F. Locust bean gum, 0.10-0.60 wt.%, preferably about 0.25 wt.%.

At levels below 0.10 wt.% the slush texture is brittle with large ice crystals. It also melts very quickly. At levels above 0.60 wt.% the texture is gummy and slimy, and the flavor becomes cardboard like.

Of these gums, guar gum is preferred. Of course, two or more gums may be used in combination.

The gums used in the present composition are commercially available from Kelco (Division of Merck & Co., Inc.), San Diego, CA; FMC Corporation, Philadelphia, PA; TIC Gums, Inc., Belcamp, MD; and Hercules, Inc., Wilmington, DE.

The present compositions also contain 13 to 37 wt.%, preferably 18 to 25 wt.%, of one or more sugars. Suitable sugars include sucrose, dextrose, fructose and high fructose syrups, and honey. Preferred sugars are sucrose and fructose.

Typically, the present compositions will also include a flavoring agent. Suitable flavoring agents include any concentrated flavors, natural or artificial. Preferred flavoring agents include acerola, almond, amaretto, apple, apricot, arctic bramble, babaco, bacuri, bael fruit, banana, banana split, barberry, beer, beli, bergamot, bilberry, bilimbi, black currant, blackberry, bloody Mary, blueberry, boysenberry, brandy, brown sugar, butterscotch, calieb, cantaloupe, cupuacu, carambola, caramel, carob, cashew apple, cassis, champagne, cherimoya, cherry, chocolate, cholupa, cider, cinnamon, citrus, cloudberry, cocoa, coconut, coffee, cognac, cola, cowberry, cranberry, cream, cucumber, curcuba, currant, custard apple, dalieb, date, donut, durian, eggnog, elderberry, espresso, feijoa, fig, fudge, gin, ginger, ginger ale, giranadilla, gooseberry, grape, grapefruit, guanabana, guava, gumdrop, hawthorn, hazelnut, honey, honeydew melon, ice cream, jackfruit, jostaberry, jujube, kaki (date plum), kiwi, kiwano, kumquat, langsat, lemon, licorice, macadamia, lime, limon, lingonberry, loquat, lychee, malted milk, mamay, mandarine, mango, mangosteen, maple, marshmallow, margarita,

melon, molasses, mountain papaya, mulberry, muruci, musk melon, naranjilla, nashi plum, neapolitan, nectarine, nougat, orange, papaya, passionfruit, peach, peanut, peanut butter, pear, pecan, pepino, peppermint, persimmon, pineapple, pizza, plantain, plum, pomegranate, popcorn, prickly pear, prune, pumpkin, punch, quince, raisin, rambuttan, raspberry, red currant, root beer, roseapple, rum, salak, sapodilla, sea buckthorn, soursop, spearmint, spice, squash, star apple, starfruit, strawberry, tamarind, tangerine, taperaba, tayberry, tea, toffee, tomato, tutti fruitti, vanilla, vodka, walnut, watermelon, whiskey, wine, wintergreen, wood apple and yogurt. The flavoring agent will typically be present in an amount of 0.01 to 5.0 wt.%, preferably 0.10 to 0.50 wt.%.

The present compositions may also contain certain optional components, such as acids, sodium chloride, cocoa powder, clouding agents, fruit or vegetable juices, maltodextrin or other low molecular weight carbohydrates, preservatives, and dyes.

Examples of suitable acids include acetic acid, ascorbic acid, citric acid, malic acid, phosphoric acid, succinic acid, tannic acid, and tartaric acid. Citric acid is preferred. When present, the acid is suitably present in an amount greater than 0.00% by weight and up to 2.00% by weight, based on the total weight of the composition, preferably in an

amount of 0.30 to 0.50% by weight, based on the total weight of the composition.

When present, sodium chloride is suitably present in an amount greater than 0.00% by weight and up to 0.10% by weight, based on the total weight of the composition, preferably in an amount of 0.02 to 0.04% by weight, based on the total weight of the composition.

When present, cocoa powder will be contained in the present compositions in an amount greater than 0% by weight and up to 2% by weight, based on the total weight of the composition, preferably in an amount of 0.50 to 1.0% by weight, based on the total weight of the composition. Sources of cocoa powder include WLM Bensdorp Co., 1800 W. Park Drive, Westborough, MA 01581; DeZaan, Inc., 1 Bridge Plaza North, Ft. Lee, NJ 07024; and Wilbur Chocolate col., Inc., 20 N. Brood St., Lilitz, PA 17543.

Examples of suitable clouding agents include citrus emulsions with ester gums and/or brominated vegetable oil. Such clouding agents are commercially available from Sethness-Greenleaf, Inc., 1826 N. Lorel Ave., Chicago, IL 60639; TIC Gums, Inc., 4609 Richlynn Dr., Belcamp, MD 21017; and Cargill Citro-America, Inc., East 6th St., Frostproof, FL 33843. When the present composition contains a clouding agent, the clouding agent will be present in an amount greater than 0% by

weight and up to 1.0% by weight, based on the total weight of the compositions, preferably in an amount of 0.30 to 0.60% by weight, based on the total weight of the composition.

Fruit and vegetable juices suitable for inclusion in the present compositions include apple, apricot, banana, beet, blackberry, carrot, celery, cherry, coconut, cranberry, currant, grape, guanabana, lemon, lime, melon, peach, pear, plum, prune, raspberry, strawberry, and tomato. Preferred juices include apple, carrot, grape, lemon, lime, pear, raspberry, strawberry, and, tomato. Such juices are commercially available from a wide variety of sources. When the present compositions contain a juice, the juice will be present in an amount greater than 0% juice content and up to 20% juice content, based on the total juice declared in the composition, preferably in an amount of 1.0 to 5.0% juice content, based on the total juice declared in the composition.

Maltodextrin is commercially available from ADM Corn Processing, 4666 Faries Parkway, Decatur, IL 62526; A.E. Staley Manufacturing Co., 2200 E. Eldorado St., Decatur, IL 62525; and Cargill Inc., P.O. Box 9300, Minneapolis, MN 55440. When the present composition contains a maltodextrin or other low molecular weight carbohydrate, such component will be present in an amount greater than 0% by weight and up to 15% by weight, based on the total weight of the composition,

preferably in an amount of 0.5 to 5.0% by weight, based on the total weight of the composition.

Examples of suitable preservatives include sodium benzoate, potassium sorbate, propyl gallate, ethylenediaminetetraacetic acid (EDTA), 2-tert-butyl-4-methoxyphenol and 3-tert-butyl-4-methoxyphenol (BHA), and 2,6-di-tert-butyl-4-methylphenol (BHT). Suitably, the preservative is present in an amount of 0.02 to 0.10% by weight, based on the total weight of the composition.

Any FD&C food grade color and approved natural color may be used, and the colorant is used in an amount effective to obtain the desired result. Typically, the colorant will be present in an amount of 20-300 ppm for synthetic colors, and 50-2000 ppm for natural colors.

Lastly, the balance of the composition is water. Thus, the present compositions will suitably contain 60 to 87% by weight, based on the total weight of the composition, preferably 75 to 80% by weight, based on the total weight of the composition, of water.

The present compositions are alcohol-free. This means that the present compositions contain less than 0.5 wt.%, preferably less than 0.1 wt.%, of ethanol. The present compositions are also characterized by the absence of agents which are typically used to prepare and/or stabilize frozen

slush snack compositions, such as freezing point depression materials, such as alcohols, particularly polyhydric alcohols, such as propylene glycol, sorbitol, glycerol, mannitol, and xylitol. This means that the present compositions contain less than 0.5 wt.%, preferably less than 0.1 wt.%, based on the total weight of the composition, of such freezing point depression materials.

Preferably, the present compositions are also characterized by the absence of chemical emulsifiers, such as sorbitan monostearate, fatty acid mono- and diglycerides, and polysorbates, e.g., polysorbate 80. This means that the present compositions will preferably contain less than 0.05 wt.%, based on the total weight of the composition, more preferably less than 0.01 wt.%, based on the total weight of the composition, of such chemical emulsifiers.

The present compositions may be prepared by blending all the dry ingredients together followed by adding the blended mixture to water heated to 100-180°F with stirring. Any conventional means for blending the dry ingredients may be used, such as a drum mixer, ribbon blender or any commercially available equipment suitable for blending dry ingredients.

If the composition is to be stored in the liquid state for only a short period of time, no special precautions need be taken to exclude bacteria. On the other hand, if the

composition will be stored in the liquid state for a long period of time, it is preferred that precautions be taken to exclude bacteria and/or that the composition contain a preservative, such as described above. For example, the composition may be prepared under aseptic conditions by adding the dry ingredients to water heated to 180°C and then aseptically transferring the product to a sealed container.

The present composition may then be packaged in an air-tight package. Suitable packages include sealed foil pouches or bags, plastic cups with air-tight covers, etc. The packaged composition will typically be stocked and sold at room temperature (i.e., in the liquid state). The consumer will then place the packaged composition in their freezer. Typically, the slush is formed within a few hours. The slush is formed with quiescent cooling, i.e., without agitation. After the slush has formed, the composition is removed from the freezer and is consumed. In some cases, it may be preferred to "soften" the slush by either gentle manipulation of the package or stirring with a straw or spoon.

At home, the composition may be stored either in the frozen state in the freezer or in the liquid state in a cupboard or pantry. The present compositions are storage stable for long periods of time in either the slushy or liquid state and are stable to repeated freeze/thaw cycles.

Other features of the invention will become apparent in the course of the following descriptions of exemplary embodiments which are given for illustration of the invention and are not intended to be limiting thereof.

EXAMPLES

In the following examples, all amounts are given in % by weight based on the total weight of the composition.

EXAMPLE 1

A strawberry flavored slush was prepared by combining the following ingredients:

Ingredient	Weight %
Sucrose	17.00
Fructose	5.00
Citric acid	0.40
Salt	0.03
Pectin	0.25
Guar gum	0.04
Water	77.08
Flavor and color	0.20

The water was heated to 130°F. The dry ingredients were blended and added to the water with stirring. The flavor and color was added, and the product was transferred to a pouch and placed in a conventional freezer (0°F) for six hours.

After standing at room temperature for 3 minutes, the product had a consistency that was satisfactory for eating with a spoon and a pleasant flavor.

If it were desired to prepare a composition suitable for storage in the liquid state for long periods of time, the composition could be prepared under aseptic conditions by using water heated to 180°C and aseptically transferring the product to a sealable pouch.

EXAMPLE 2

A lemon flavored slush was prepared by combining the following ingredients:

Ingredient	Weight %
Sucrose	15.00
Fructose	7.00
Citric acid	0.50
Salt	0.03
Pectin	0.35
Carrageenan	0.30
Water	76.32
Flavor	0.50

The water was heated to 160°F. The dry ingredients were blended and added to the water with stirring. The flavor was added, and the product was transferred to a pouch and placed in a conventional freezer (0°F) for six hours.

After standing at room temperature for 3 minutes, the product had a very pleasant spoonable consistency and flavor.

In a further test, samples of the foregoing product were initially hardened, thawed completely for two hours, then refrozen. This procedure was repeated three times. The resulting product showed no loss of desired ice crystal structure or pleasant flavor.

Obviously, numerous modifications and variations of the present invention are possible in light of the above teachings. It is therefore to be understood that, within the

scope of the appended claims, the invention may be practiced otherwise than as specifically described herein.

CLAIMS:

1. A composition, comprising:

(a) 0.02 to 3.0 wt.% of a gum;

(b) 0.15 to 0.9 wt.% of pectin;

(c) 13 to 37 wt.% of a sugar; and

(d) 60 to 87 wt.% of water,

wherein all amounts are based on the total weight of said composition.

2. The composition of Claim 1 wherein said gum is selected from the group consisting of guar gum, gum tragacanth, gum arabic, xanthan gum, carrageenan, and locust bean gum.

3. The composition of Claim 1, wherein said gum is guar gum and is present in an amount of 0.02 to 0.07 wt.%, based on the total weight of said composition.

4. The composition of Claim 1, wherein said gum is gum tragacanth and is present in an amount of 0.07 to 0.20 wt.%, based on the total weight of said composition.

5. The composition of Claim 1, wherein said gum is gum arabic and is present in an amount of 0.50 to 3.00 wt.%, based on the total weight of said composition.

6. The composition of Claim 1, wherein said gum is xanthan gum and is present in an amount of 0.04 to 0.15 wt.%, based on the total weight of said composition.

7. The composition of Claim 1, wherein said gum is carrageenan and is present in an amount of 0.25 to 0.70 wt.%, based on the total weight of said composition.

8. The composition of Claim 1, wherein said gum is locust bean gum and is present in an amount of 0.10 to 0.60 wt.%, based on the total weight of said composition.

9. The composition of Claim 1, which is alcohol free.

10. The composition of Claim 1, wherein said sugar is selected from the group consisting of sucrose, dextrose, fructose and high fructose containing syrups, honey, and mixtures thereof.

11. The composition of Claim 1, wherein said sugar is selected from the group consisting of sucrose, fructose, and mixtures thereof.

12. The composition of Claim 1, further comprising one or more ingredients selected from the group consisting of acids, sodium chloride, cocoa powder, clouding agents, fruit juices, vegetable juices, maltodextrin, preservatives, and dyes.

13. The composition of Claim 1, further comprising a flavoring agent.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/08420

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : A23L 2/00; C12G 3/00, 3/04, 3/06,
US CL : 426/524, 573, 578, 590, 599, 658
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 426/524, 573, 578, 590, 599, 658

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	US 3,826,829 A (MARULICH) 30 July 1974, col. 2, lines 63-64, col. 3, lines 49-51, Example 1.	1-4, 7-13 ---------- 5, 6
X ----- Y	US 3,619,205 A (LEVAN) 09 November 1971, Example1, col. 2, lines 4-9.	1-5, 7-13 ---------- 6
X ----- Y	JP 4-258282 A (OSHIMURA et al) 14 September 1992, pages 2-5.	1-3, 6-8,10-13 ---------- 4, 5, 9
A	GRAHAM, H.D. Food Colloids, AVI Publishing, Inc. Connecticut, 1977, pages 531-533.	

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 14 JULY 1997	Date of mailing of the international search report 15 AUG 1997
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